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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,829	05/09/2002	Yongwon Choi	600-1-200NCIP2	6562

28977 7590 09/30/2004

MORGAN, LEWIS & BOCKIUS LLP
1701 MARKET STREET
PHILADELPHIA, PA 19103-2921

EXAMINER

ANDRES, JANET L

ART UNIT	PAPER NUMBER
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1646

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/873,829

Applicant(s)

CHOI ET AL.

Examiner

Janet L. Andres

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1646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-84 is/are pending in the application.
- 4a) Of the above claim(s) 9-15,26,28-36 and 38-86 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8,16-25,27 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4 June 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/02</u> . | 6) <input checked="" type="checkbox"/> Other: <u>sequence alignments</u> . |

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I, polynucleotides, in the reply filed on 6 July 2004 is acknowledged. Claims 1-84 are pending in this application. Claims 9-15, 26, 28-36, and 38-86 are withdrawn from consideration as being drawn to a non-elected invention.

Claim Objections

Claims 25, 27, and 37 are objected to as encompassing non-elected subject matter.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 22 and 23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These claims encompass mammalian cells with no requirement that they be isolated and thus encompass the host cell as it occurs in nature, for example, as a gene therapy patient. Since Applicants do not intend to claim a naturally occurring products amendment of the claims to show the hand of man would obviate this rejection. It is suggested that the claims be amended to recite "an isolated mammalian host cell ..."

Claim Rejections - 35 USC § 112

Claim 37 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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The factors to be considered have been summarized as the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art and the breadth of the claims. *Ex Parte Forman*, (230 USPQ 546 (Bd Pat. App. & Int. 1986)); *In re Wands*, 858 F.2d 731, 8 USPQ 2d 1400 (Fed. Cir. 1988).

This claim is drawn to a pharmaceutical composition and thus implies a therapeutic use. The specification, however, describes only general, potential effects of such a composition on p. 70. There is insufficient guidance to indicate that any biological effect could be obtained, or any disease treated, using an antagonist to TRANCE. Although the specification outlines art-recognized compositions and techniques, this is not adequate guidance as to how TRANCE inhibition could be used therapeutically, but is merely an invitation to the artisan to use the current invention as a starting point for further experimentation. Furthermore, antisense therapy is unreliable and dependent on the particular gene and particular antisense molecules used. Thus, without further guidance, it would require undue experimentation for the artisan to use antisense molecules as pharmaceutical agents.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 3, 5-8, and 16-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claims 2, 3, 5-8, and 16-21 encompass molecules identified by “standard hybridization conditions”. No such conditions are defined in the specification; the description on pp. 39-40 does not exclude any conditions. One of skill in the art would therefore be unable to determine what conditions and thus what molecules Applicant intended the claims to encompass.

Claims 3 and 6 are also indefinite because a molecule that hybridizes to an encoding sequence will not itself encode the same protein.

Claims 22 and 23 are indefinite in the recitation of “TRANCE”. There is no definition of “TRANCE”; the specification on p. 4 refers to sequences that are included but includes also analogs and derivatives, with no limitation as to their structure or function. Thus the artisan would not be able to determine what proteins, and thus what polynucleotides, Applicant intended the claims to encompass.

Claims 6 and 24 are indefinite in the recitation of “conservative variant”, “analog”, and “derivative”. None of these terms are defined in the specification so as to require any particular structure or function; nothing is excluded by Applicant’s descriptions on pp. 34 and 50. Thus the artisan would not know what molecules Applicant intended the claims to encompass.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8 and 16-23 are rejected under 35 U.S.C. 102(a) as being anticipated by Anderson et al., Nature, 1997, vol. 390, pp. 175-179. Anderson et al. teaches a sequence comprising SEQ ID NO: 2 with a single mismatch and teaches the sequence of SEQ ID NO: 4 with a single mismatch in figure 2a, p. 177. The polynucleotides encoding these sequences were provided to GenBank; see footnote and attached sequences. These polynucleotides are thus degenerate variants of SEQ ID Nos 1 and 3 according to Applicant's description on pp. 5-6. Detectable hybridizing molecules were used in figure 2b. Protein expression is taught on p. 179.

Claims 1-8, 16-25, 27, and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 6,242,213.

The '213 patent teaches SEQ ID NO 11, which is a truncated version of SEQ ID NO: 4, with a single mismatch, and SEQ ID NO: 13, which comprises SEQ ID NO: 2 with a single mismatch. Sequences encoding them, which are thus degenerate variants of Applicant's SEQ ID Nos 1 and 3, are taught in SEQ ID NOs 10 and 12. Expression is taught in column 10-14. Detectable hybridizing molecules are taught in column 9, lines 27-59. Modified antisense molecules are taught by reference to Cohen et al. in column 9, line 58.

Claims 4-8, 18-25, 27, and 37 rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 5,843,678.

The '678 patent teaches SEQ ID NO: 6, which encodes SEQ ID NO: 7, which is identical to instant SEQ ID NO: 4. See sequence alignment attached. Expression is taught in column 5. Detectable hybridizing molecules are taught in column 4. Antisense therapy is taught in column 8.

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NO CLAIM IS ALLOWED.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet L. Andres whose telephone number is 571-272-0867. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached on 571-272-0961. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Janet L. Andres, Ph.D.
21 September 2004


JANET ANDRES
PRIMARY EXAMINER

encodes

#2

LOCUS AF019047 2201 bp mRNA linear PRI 22-NOV-1997
DEFINITION Homo sapiens receptor activator of nuclear factor kappa B ligand
(RANKL) mRNA, complete cds.
ACCESSION AF019047
VERSION AF019047.1 GI:2612921
KEYWORDS .
SOURCE Homo sapiens (human)
ORGANISM Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE 1 (bases 1 to 2201)
AUTHORS Anderson,D.M., Maraskovsky,E., Billingsley,W.L., Dougall,W.C.,
Tometsko,M.E., Roux,E.R., Teepe,M.C., DuBose,R.F., Cosman,D. and
Galibert,L.
TITLE A homologue of the TNF receptor and its ligand enhance T-cell
growth and dendritic-cell function
JOURNAL Nature 390 (6656), 175-179 (1997)
MEDLINE 98032977
PUBMED 9367155
REFERENCE 2 (bases 1 to 2201)
AUTHORS Anderson,D.M., Billingsley,W., Dougall,W., Maraskovsky,E.,
Cosman,D., DuBose,R. and Galibert,L.
TITLE Direct Submission
JOURNAL Submitted (13-AUG-1997) Molecular Biology, Immunex Corp., 51
University St., Seattle, WA 98101, USA
FEATURES Location/Qualifiers
source 1. .2201
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/chromosome="13"
/map="13q14"
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CDS 129. .1082
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ORIGIN
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Best Local Similarity 99.3%; Pred. No. 0;
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[illegible]

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encodes

#4

DEFINITION Mus musculus receptor activator of nuclear factor kappa B ligand
(RANKL) mRNA, complete cds.
ACCESSION AF019048
VERSION AF019048.1 GI:2612923
KEYWORDS .
SOURCE Mus musculus (house mouse)
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 2225)
AUTHORS Anderson,D.M., Maraskovsky,E., Billingsley,W.L., Dougall,W.C.,
Tometsko,M.E., Roux,E.R., Teepe,M.C., DuBose,R.F., Cosman,D. and
Galibert,L.
TITLE A homologue of the TNF receptor and its ligand enhance T-cell
growth and dendritic-cell function
JOURNAL Nature 390 (6656), 175-179 (1997)
MEDLINE 98032977
PUBMED 9367155
REFERENCE 2 (bases 1 to 2225)
AUTHORS Anderson,D.M., Billingsley,W., Dougall,W., Maraskovsky,E.,
Cosman,D., DuBose,R. and Galibert,L.
TITLE Direct Submission
JOURNAL Submitted (13-AUG-1997) Molecular Biology, Immunex Corp., 51
University St., Seattle, WA 98101, USA
FEATURES Location/Qualifiers
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/db_xref="taxon:10090"
gene 1. .2225
/gene="RANKL"
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/note="receptor activator of nuclear factor kappa B
ligand"
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ORIGIN

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Best Local Similarity 98.8%; Pred. No. 0;
Matches 2201; Conservative 0; Mismatches 16; Indels 10; Gaps 6;

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Db	1500	TTACATTGCGCTGGGACCTGCAAATAAGTTCTTTTTTTCTAATGAGGAGAGAAAAATATA	1559
Qy	1563	TGTATTTTTATATAATGTCTAAAGTTATATTTTCAGGTGTAATGTTTTCTGTGCAAAGTTT	1622
Db	1560	TGTATTTTTATATAATGTCTAAAGTTATATTTTCAGGTGTAATGTTTTCTGTGCAAAGTTT	1619
Qy	1623	TGTAAATTATATTTGTGCTATAGTATTTGATTCAAAATATTTAAAAATGTCTCACTGTTG	1682
Db	1620	TGTAAATTATATTTGTGCTATAGTATTTGATTCAAAATATTTAAAAATGTCTCACTGTTG	1679
Qy	1683	ACATATTTAATGTTTTAAATGTACAGATGTATTTAACTGGTGCACTTTGTAATCCCCCTG	1742
Db	1680	ACATATTTAATGTTTTAAATGTACAGATGTATTTAACTGGTGCACTTTGTAATCCCCCTG	1739
Qy	1743	AAGGTACTCGTAGCTAAGGGGGCAGAATACTGTTTCTGGTGACCACATGTAGTTTATTTT	1802
Db	1740	AAGGTACTCGTAGCTAAGGGGGCAGAATACTGTTTCTGGTGACCACATGTAGTTTATTTT	1799

Qy	1803	TTTATTCTTTTAACTTAATAGAGTCTTCAGACTTGTCAAACTATGCAAGCAAAATAAA	1862
Db	1800	TTTATTCTTTTAACTTAATAGAGTCTTCAGACTTGTCAAACTATGCAAGCAAAATAAA	1859
Qy	1863	TAAATAAAAAATAAATGAATACCTTGAATAATAAGTAGGATGTTGGTCACCAGGTGCCTT	1922
Db	1860	TAAATAAAAAATAAATGAATACCTTGAATAATAAGTAGGATGTTGGTCACCAGGTGCCTT	1919
Qy	1923	TCAAATTTAGAAGCTAATTGACTTTAGGAGCTGACATAGCCAAAAAGGA-ACATAATAGG	1981
Db	1920	TCAAATTTAGAAGCTAATTGACTTTAGGAGCTGACATAGCCAAAAAGGATACATAATAGG	1979
Qy	1982	CTACTGAAATCTGTCAGGAGTATTTATGCAATTATTGAACAGGTGTCTTTTTTTTACAAGA	2041
Db	1980	CTACTGAAATCTGTCAGGAGTATTTATGCAATTATTGAACAGGTGTCTTTTTTTTACAAGA	2039
Qy	2042	GCTACAAATTGTAAATTTTGGTTTCTTTTTTTTCCCATAGAAAATGTACTATAGTTTATC	2101
Db	2040	GCTACAAATTGTAAATTTT-GTTTCTTTTTTTTCCCATAGAAAATGTACTATAGTTTATC	2098
Qy	2102	AGCCAAAAACAATCCACTTTTTTAATTTAGTGAAAGTTATTTTATTATACTGTACAATAA	2161
Db	2099	AGCCAAAAACAATCCACTTTTTTAATTTAGTGAAAGTTATTTTATTATACTGTACAATAA	2158
Qy	2162	AAGCATTGTCTCTGAATGTTAATTTTTTGGTACAAAAATAAATTTGTACGAAAAAAA	2221
Db	2159	AAGCATTGTCTCTGAATGTTAATTTTTTGGTACAAAAATAAATTTGTACGAAAACCTGA	2218
Qy	2222	AAAAAA 2228	
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 ACCESSION AR062119
 VERSION AR062119.1 GI:5989810
 KEYWORDS .
 SOURCE Unknown.
 ORGANISM Unknown.
 Unclassified.
 REFERENCE 1 (bases 1 to 2295)
 AUTHORS Boyle,W.J.
 TITLE Osteoprotegerin binding proteins
 JOURNAL Patent: US 5843678-A 6 01-DEC-1998;
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 ORIGIN

Query Match 94.8%; Score 2120.4; DB 6; Length 2295;
 Best Local Similarity 98.8%; Pred. No. 0;
 Matches 2200; Conservative 0; Mismatches 16; Indels 10; Gaps 6;

Qy	20	CTGCCAGGACCTTTGTGAACCGGTCGGGGCGGGGCGGCGTGGC----	GGAGTCTGCTCGGC	75
Db	32	CGGCCAGGACCTCTGTGAACCGGTCGGGGCGGGGCGGCGCTGGCCGGGAGTCTGCTCGGC		91
Qy	76	GGTGGGTGGCCCCGAGAAGGGAGAGAACGATCGCGGAGCAGGGCGCCCGAACTCCGGGCGC		135
Db	92	GGTGGGTGGCCGAGGAAGGGAGAGAACGATCGCGGAGCAGGGCGCCCGAACTCCGGGCGC		151
Qy	136	CGCGCCATGCGCCGGGCCAGCCGAGACTACGGCAAGTACCTGCGCAGCTCGGAAGAGATG		195
Db	152	CGCGCCATGCGCCGGGCCAGCCGAGACTACGGCAAGTACCTGCGCAGCTCGGAGGAGATG		211
Qy	196	GGCAGCGGCCCCGGCGTCCCACACGAAGTCCGCTGCACCCCGCGCCTTCTGCACCGGCT		255
Db	212	GGCAGCGGCCCCGGCGTCCCACACGAGGGTCCGCTGCACCCCGCGCCTTCTGCACCGGCT		271
Qy	256	CCGGCGCCGCCACCCGCGCCTCCCGCTCCATGTTCTGCCCCCTCCTGGGGCTGGGACTG		315
Db	272	CCGGCGCCGCCACCCGCGCCTCCCGCTCCATGTTCTGCCCCCTCCTGGGGCTGGGACTG		331
Qy	316	GGCCAGGTGGTCTGCAGCATCGCTCTGTTCTGTACTTTTCGAGCGCAGATGGATCCTAAC		375
Db	332	GGCCAGGTGGTCTGCAGCATCGCTCTGTTCTGTACTTTTCGAGCGCAGATGGATCCTAAC		391
Qy	376	AGAATATCAGAAGACAGCACTCACTGCTTTTATAGAATCCTGAGACTCCATGAAAACGCA		435
Db	392	AGAATATCAGAAGACAGCACTCACTGCTTTTATAGAATCCTGAGACTCCATGAAAACGCA		451
Qy	436	GGTTTGCAGGACTCGACTCTGGAGAGTGAAGACACACTACCTGACTCCTGCAGGAGGATG		495
Db	452	GGTTTGCAGGACTCGACTCTGGAGAGTGAAGACACACTACCTGACTCCTGCAGGAGGATG		511
Qy	496	AAACAAGCCTTTTCAGGGGGCCGTGCAGAAGGAACTGCAACACATTGTGGGGCCACAGCGC		555

Db	512	AAACAAGCCTTTCAGGGGGCCGTGCAGAAGGAAGTCAACACATTGTGGGGCCACAGCGC	571
Qy	556	TTCTCAGGAGCTCCAGCTATGATGGAAGGCTCATGGTTGGATGTGGCCCAGCGAGGCAAG	615
Db	572	TTCTCAGGAGCTCCAGCTATGATGGAAGGCTCATGGTTGGATGTGGCCCAGCGAGGCAAG	631
Qy	616	CCTGAGGCCCAGCCATTTGCACACCTCACCATCAATGCTGCCAGCATCCCATCGGGTTCC	675
Db	632	CCTGAGGCCCAGCCATTTGCACACCTCACCATCAATGCTGCCAGCATCCCATCGGGTTCC	691
Qy	676	CATAAAGTCACTCTGTCTCTTGGTACCACGATCGAGGCTGGGCCAAGATCTCTAACATG	735
Db	692	CATAAAGTCACTCTGTCTCTTGGTACCACGATCGAGGCTGGGCCAAGATCTCTAACATG	751
Qy	736	ACGTTAAGCAACGGAAAACTAAGGGTTAACCAAGATGGCTTCTATTACCTGTACGCCAAC	795
Db	752	ACGTTAAGCAACGGAAAACTAAGGGTTAACCAAGATGGCTTCTATTACCTGTACGCCAAC	811
Qy	796	ATTTGCTTTTCGGCATCATGAAACATCGGGAAGCGTACCTACAGACTATCTTCAGCTGATG	855
Db	812	ATTTGCTTTTCGGCATCATGAAACATCGGGAAGCGTACCTACAGACTATCTTCAGCTGATG	871
Qy	856	GTGTATGTCTGTTAAAACAGCATCAAAATCCCAAGTTCTCATAACCTGATGAAAGGAGGG	915
Db	872	GTGTATGTCTGTTAAAACAGCATCAAAATCCCAAGTTCTCATAACCTGATGAAAGGAGGG	931
Qy	916	AGCACGAAAACTGGTCGGGCAATTCTGAATTCCTTTTATTCCATAAATGTTGGGGGA	975
Db	932	AGCACGAAAACTGGTCGGGCAATTCTGAATTCCTTTTATTCCATAAATGTTGGGGGA	991
Qy	976	TTTTTCAAGCTCCGAGCTGGTGAAGAAATTAGCATTCAGGTGTCCAACCCCTTCCCTGCTG	1035
Db	992	TTTTTCAAGCTCCGAGCTGGTGAAGAAATTAGCATTCAGGTGTCCAACCCCTTCCCTGCTG	1051
Qy	1036	GATCCGGATCAAGATGCGACGTACTTTGGGGCTTTCAAAGTTCAGGACATAGACTGAGAC	1095
Db	1052	GATCCGGATCAAGATGCGACGTACTTTGGGGCTTTCAAAGTTCAGGACATAGACTGAGAC	1111
Qy	1096	TCATTTTCGTGGAACATTAGCATGGATGTCCTAGATGTTTGGAAACTTCTTAAAAAATGGA	1155
Db	1112	TCATTTTCGTGGAACATTAGCATGGATGTCCTAGATGTTTGGAAACTTCTTAAAAAATGGA	1171
Qy	1156	TGATGTCTATACATGTGTAAGACTACTAAGAGACATGGCCCCACGGTGTATGAAACTCACA	1215
Db	1172	TGATGTCTATACATGTGTAAGACTACTAAGAGACATGGCCCCACGGTGTATGAAACTCACA	1231
Qy	1216	GCCCTCTCTCTTGAGCCCTGTACAGGTTGTGTATATGTAAAGTCCATAGGTGATGTTAGA	1275
Db	1232	GCCCTCTCTCTTGAG-CCTGTACAGGTTGTGTATATGTAAAGTCCATAGGTGATGTTAGA	1290
Qy	1276	TTCATGGTGATTACACAACGGTTTTACAATTTTGTAAATGATTTCTTAGAATTGAACCAGA	1335
Db	1291	TTCATGGTGATTACACAACGGTTTTACAATTTTGTAAATGATTTCTTAGAATTGAACCAGA	1350
Qy	1336	TTGGGAGAGGTATTCCGATGCTTATGAAAAACTTACACGTGAGCTATGGAAGGGGGTCAC	1395
Db	1351	TTGGGAGAGGTATTCCGATGCTTATGAAAAACTTACACGTGAGCTATGGAAGGGGGTCAC	1410

Qy	1396	AGTCTCTT-GGTCTAACCCCTGGACATGTGCCACTGAGAACCCTTGAAATTAAAGAGGATGCC	1454
Db	1411	AGTCTCTGGGTCTAACCCCTGGACATGTGCCACTGAGAACCCTTGAAATTAAAGAGGATGCC	1470
Qy	1455	ATGTCATTGCATAGAAATGATAGTGTGAAGGGTTAAGTTCTTTTGAATTGTTACATTGCG	1514
Db	1471	ATGTCATTGCAAAGAAATGATAGTGTGAAGGGTTAAGTTCTTTTGAATTGTTACATTGCG	1530
Qy	1515	CTGGGACCTGCAAATAAGTTCTTTTTTTCTAATGAG--GAGAAAAATATATGTATTTTTTA	1572
Db	1531	CTGGGACCTGCAAATAAGTTCTTTTTTTCTAATGAGGAGAGAAAAATATATGTATTTTTTA	1590
Qy	1573	TATAATGTCTAAAGTTATATTTTCAGGTGTAATGTTTTCTGTGCAAAGTTTTGTAAATTAT	1632
Db	1591	TATAATGTCTAAAGTTATATTTTCAGGTGTAATGTTTTCTGTGCAAAGTTTTGTAAATTAT	1650
Qy	1633	ATTTGTGCTATAGTATTTGATTCAAAATATTTAAAAATGTCTCACTGTTGACATATTTAA	1692
Db	1651	ATTTGTGCTATAGTATTTGATTCAAAATATTTAAAAATGTCTCACTGTTGACATATTTAA	1710
Qy	1693	TGTTTTAAATGTACAGATGTATTTAACTGGTGCACCTTTGTAATCCCCTGAAGGTACTCG	1752
Db	1711	TGTTTTAAATGTACAGATGTATTTAACTGGTGCACCTTTGTAATCCCCTGAAGGTACTCG	1770
Qy	1753	TAGCTAAGGGGGCAGAATACTGTTTCTGGTGACCACATGTAGTTTATTTCTTTATTCTTT	1812
Db	1771	TAGCTAAGGGGGCAGAATACTGTTTCTGGTGACCACATGTAGTTTATTTCTTTATTCTTT	1830
Qy	1813	TTAACTTAATAGAGTCTTCAGACTTGTCAAACTATGCAAGCAAATAAAATAAAATAAAAA	1872
Db	1831	TTAACTTAATAGAGTCTTCAGACTTGTCAAACTATGCAAGCAAATAAAATAAAATAAAAA	1890
Qy	1873	TAAAATGAATACCTTGAATAATAAGTAGGATGTTGGTCACCAGGTGCCTTTCAAATTTAG	1932
Db	1891	TAAAATGAATACCTTGAATAATAAGTAGGATGTTGGTCACCAGGTGCCTTTCAAATTTAG	1950
Qy	1933	AAGCTAATTGACTTTTAGGAGCTGACATAGCCAAAAAGGA-ACATAATAGGCTACTGAAAT	1991
Db	1951	AAGCTAATTGACTTTTAGGAGCTGACATAGCCAAAAAGGATACATAATAGGCTACTGAAAT	2010
Qy	1992	CTGTCAGGAGTATTTATGCAATTATTGAACAGGTGTCTTTTTTTTACAAGAGCTACAAATT	2051
Db	2011	CTGTCAGGAGTATTTATGCAATTATTGAACAGGTGTCTTTTTTTTACAAGAGCTACAAATT	2070
Qy	2052	GTAAATTTTGGTTTTCTTTTTTTTCCCATAGAAAATGTACTATAGTTTATCAGCCAAAAA	2111
Db	2071	GTAAATTTT-GTTTCTTTTTTTTCCCATAGAAAATGTACTATAGTTTATCAGCCAAAAA	2129
Qy	2112	CAATCCACTTTTTTAATTTAGTGAAAGTTATTTTATTATACTGTACAATAAAAGCATTGTC	2171
Db	2130	CAATCCACTTTTTTAATTTAGTGAAAGTTATTTTATTATACTGTACAATAAAAGCATTGTC	2189
Qy	2172	TCTGAATGTTAATTTTTTGGTACAAAAAATAAATTTGTACGAAAAAAAAAAAAAAAAAAAA	2231
Db	2190	TCTGAATGTTAATTTTTTGGTACAAAAAATAAATTTGTACGAAACCTGAAAAAAAAAAAA	2249

Qy 2232 AAAAAA 2237

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Db 2250 AAAAAA 2255

US-08-842-842-7

Query Match 100.0%; Score 1675; DB 2; Length 316;
Best Local Similarity 100.0%; Pred. No. 8.4e-157;
Matches 316; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db      1 MRRASRDYGKYLRSSSEEMGSGPGVPHEGPLHPAPSAPAPAPPPPAASRSMFLALLGLGLGQ 60

Qy     61 VVCSIALFLYFRAQMDPNRISEDSTHCFYRILRLHENAGLQDSTLESEDTLPDSCRRMKQ 120
        ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 VVCSIALFLYFRAQMDPNRISEDSTHCFYRILRLHENAGLQDSTLESEDTLPDSCRRMKQ 120

Qy    121 AFQGA VQKELQHIVGPQRFSGAPAMMEGSWLDVAQRGKPEAQPF AHLTINAASIPSGSHK 180
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Db    121 AFQGA VQKELQHIVGPQRFSGAPAMMEGSWLDVAQRGKPEAQPF AHLTINAASIPSGSHK 180

Qy    181 VTLSSWYHDRGWAKISNMTLSNGKLRVNQDGFYLYANICFRHHETSGSVPTDYLQLMVY 240
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Db    181 VTLSSWYHDRGWAKISNMTLSNGKLRVNQDGFYLYANICFRHHETSGSVPTDYLQLMVY 240

Qy    241 VVKTSIKIPSSHNLMKGGSTKNWSGNSEFHFYSINVGGFFKLRAGEEISIQVSNPSLLDP 300
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Db    241 VVKTSIKIPSSHNLMKGGSTKNWSGNSEFHFYSINVGGFFKLRAGEEISIQVSNPSLLDP 300

Qy    301 DQDATYFGAFKVQDID 316
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